
Occupational Characteristics of Adults with Pediatric-Onset Spinal Cord Injury

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Background: Employment rates among individuals with spinal cord injury (SCI) are lower than in the general population, and little is known about the specific occupations in which they are employed. **Objectives:** To describe specific occupations of adults with pediatric-onset SCI using the 2010 Standard Occupational Classification (SOC) system, and to determine associations between SOC occupations and demographic factors. **Methods:** Cross-sectional data specific to education and employment were collected from the last interviews of a larger longitudinal study. Occupations were categorized according to the 2010 SOC system. SOC groups were compared within gender, level of injury, and final education. **Results:** Of the 461 total participants, 219 (47.5%) were employed, and specific occupations were available for 179. Among the SOC groups, Education, Law, Community Service, Arts, and Media Occupations were most prevalent (30.2%), followed by Management, Business, and Finance Occupations (21.1%), Computer, Engineering, and Science Occupations (10.6%), Administrative and Office Support Occupations (10.0%), Service Occupations (7.3%), Healthcare Practitioners and Technical Occupations (3.9%), and Production Occupations (3.4%). Differences were found in the distribution of SOC groups between gender, levels of injury, and final education groups. **Conclusion:** A wide variety of occupations were reported in adults with pediatric-onset SCI, generally in concordance with final education and functional ability levels. **Key words:** occupation, pediatric onset, spinal cord injury, Standard Occupational Classification

Employment rates in adults with pediatric-onset spinal cord injury (SCI) are between 51% and 64%, which are higher than the adult-onset SCI population but significantly lower than the age-matched general population.¹⁻⁴ Similar to persons with adult-onset SCI, higher level of education, absence of secondary medical conditions, and greater mobility were positively associated with employment, and community participation and life satisfaction were found to be higher in employed individuals.^{1,2,5} A recent longitudinal study in this population reported stability of employment (ie, employed individuals remain employed, while unemployed persons remain unemployed) and found that those who were married or had attained a baccalaureate or higher degree had greater annual odds of being employed over time.⁶ There was a higher proportion of individuals with at least a baccalaureate degree in the pediatric-onset population, and individuals with a postbaccalaureate degree presented with a

higher employment rate than the adult-onset SCI individuals with similar education levels.^{6,7}

Although factors associated with employment have been well documented, little has been reported on the specific occupations. Lidal et al³ described an occupational classification at time of injury consisting of 5 paid employment categories (higher grade professionals, lower grade professionals, subordinate staff/non-professional, self-employed workers, lower grade technicians, and skilled manual work) and 1 category of “unskilled manual work and housewife”; however, they did not provide specific occupations or descriptions. A recent study in Canada described the occupational attributes of jobs performed after SCI and used a standardized occupational database, the National Occupation of Classification (Human Resources and Skills Development Canada, 2011), to identify the job categories in which persons with SCI were employed.⁸ In the United States, the Standard Occupational Classification (SOC)

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system is used by federal statistical agencies to classify workers into occupational categories for collecting, calculating, and disseminating data.⁹ The 2010 SOC is comprised of 23 major groups of occupations that are classified according to job duties, skills, and education. Although the type of occupation held by individuals with SCI certainly should not be limited to any specific category, information on specific occupations in relation to physical function, education, and demographic factors may provide a reference point in preparing adolescents and young adults with SCI for successful employment. Additionally, such information may provide insight into long-term job retention and economic self-sufficiency in relation to the type of occupation.

Thus, the objectives of this study were to (a) describe the occupational characteristics of adults with pediatric-onset SCI according to the SOC system and (b) determine associations between SOC categories with demographic characteristics. It is anticipated that this information may provide guidance in setting goals for education, vocational training, and future employment for adolescents and young adults with SCI.

Methods

This study used cross-sectional data from a larger longitudinal study on long-term outcomes in adults with pediatric-onset SCI. Participants were adults (age >21 years) who had sustained an SCI before the age of 19 and had participated in the SCI specialty programs of Shriners Hospitals for Children in Chicago, Philadelphia, or Northern California. Informed consent was obtained from those willing to participate, and annual telephone interviews were conducted. Institutional review board approval was obtained.

Medical records and the Shriners Hospitals for Children SCI database were used to obtain injury-related information such as level of injury, age at injury, and time since injury. Structured questionnaires were used to collect demographic information including marital and driving status, education, and employment. Final education at time of interview was classified into 5 groups according to highest diploma/degree attained: No HS, no high school diploma; HS, high

school diploma or GED; Assoc/Tech, associate's degree, technical training, or some college; Bach, baccalaureate degree; Grad, master's degree, doctorate, or professional degree (eg, MD, JD). Items pertaining to employment included work status (employed; unemployed – actively looking for a job; unemployed – not looking for a job/retired/homemaker; student), intensity of employment (full time, ≥ 35 hours/week; part time), specific occupation/vocation, and job satisfaction (very dissatisfied, dissatisfied, moderately dissatisfied, moderately satisfied, satisfied, very satisfied).

The occupations in the 2010 SOC system are classified at 4 levels of aggregation: major group (23), minor group (92), broad occupation (461), and detailed occupation (840). Depending on the needs of the user, the 23 major groups of the SOC can be aggregated into 13 intermediate aggregated groups or 6 high-level aggregated groups (**Appendix**). Occupations reported by the study participants were matched with the occupations listed in the 2010 SOC and were assigned to a major group. For the purpose of this study, we chose to use the 13 intermediate aggregated groups for analyses; however, we also present the number of participants in the 23 major groups to show the spectrum of occupations within this population.

Cross-sectional data from the participants' last interviews were used for analyses. Descriptive statistics were used to present demographic, injury-related, and employment-related data, including the distribution of SOC groups. Chi-square tests were used to compare employment by level of injury, gender, marital status, and driving status. The distribution of SOC groups was observed and compared within gender, level of injury, intensity of employment, final education, and job satisfaction.

Results

A total of 461 participants had completed at least one interview between June 1996 and June 2014. Demographic characteristics of the participants at time of last interview are presented in **Table 1**. Two hundred nineteen (47.5%) were employed; 158 (72.1%) of the employed individuals worked

Table 1. Demographic characteristics of participants at last interview ($N = 461$)

Characteristic	<i>n</i> (%) or mean \pm SD (range)
Gender	
Male	290 (62.9)
Female	171 (37.1)
Age at interview, years	32.3 \pm 5.8 (22-50)
Age at injury, years	14.2 \pm 4.4 (0-18)
Time since injury, years	18.1 \pm 6.6 (6-43)
Race	
Caucasian	390 (84.6)
African American	27 (5.9)
Hispanic	29 (6.3)
Other	15 (3.3)
AIS classification	
C1-4 AIS ABC	65 (14.1)
C5-8 AIS ABC	160 (34.7)
T1-S5 AIS ABC	189 (41.0)
AIS D	43 (9.3)
Missing	4 (.9)
Level of injury	
Paraplegia	210 (45.6)
Tetraplegia	251 (54.4)
Family/household	
Spouse	120 (26.0)
Children	98 (21.3)
Highest educational level ^a	
No HS	14 (3.0)
HS/GED	43 (9.3)
Assoc/Tech	205 (44.5)
Bach	107 (23.2)
Grad	92 (20.0)
Driving status, yes	294 (63.8)
Employment status	
Employed	219 (47.5)
Unemployed, actively looking	62 (13.4)
Unemployed, not looking ^b	130 (28.3)
Student	50 (10.8)

Note: AIS = American Spinal Injury Association Impairment Scale.

^a No HS = no high school diploma; HS/GED = high school diploma or GED; Assoc/Tech = associate degree, technical training, some college; Bach = baccalaureate; Grad = postbaccalaureate degree or professional degree (MD, JD, etc).

^b Includes retired individuals and homemakers (housewife, househusband).

full time and 35 (16.0%) were self-employed or worked in the family business. Individuals with paraplegia were more likely to be employed than those with tetraplegia (61.6% vs 45.9%; $\chi^2 = 10.445$, $P = .001$). There was no difference in employment rates between males and females (47.6% vs 47.4%; $\chi^2 = .109$, $P = .741$). Married individuals were

significantly more likely to be employed than single individuals (65.8% vs 48.3%; $\chi^2 = 10.312$, $P = .001$), and those who were able to drive were more likely to be employed than those who did not drive (65.6% vs 29.8%; $\chi^2 = 47.608$, $P < .001$). Among the employed, specific job descriptions were available for 179 individuals. The distribution of occupations in this population corresponding to the 2010 SOC is presented in **Table 2**. Within the SOC intermediate aggregate 13 group classification, Education, Legal, Community Service, Arts, and Media Occupations were most prevalent (30.2%), followed by Management, Business, and Financial Occupations (21.1%), Computer, Engineering, and Science Occupations (10.6%), and Office and Administrative Support Occupations (10.0%). SOC major group occupations not represented in this population were the Food Preparation and Serving Related Occupations and Military Specific Occupations.

Distributions of the SOC groups were compared between gender, levels of injury, and employment intensity (**Table 3**). There was a similar proportion of men and women who were employed in the Management, Business, and Financial Occupations (men, 20.4%; women 22.7%) and Education, Legal, Community Service, Arts, and Media Occupations (men, 30.1%; women, 30.3%). There was a higher proportion of women than men who were employed in the Healthcare Practitioners and Technical Occupations (men, 0.9%; women, 9.1%) and the Office and Administrative Support Occupations (men, 6.2%; women, 16.7%). Men were predominant in the Farming, Fishing, and Forestry Occupations; Construction and Extraction Occupations; Installation, Maintenance, and Repair Occupations; Production Occupations; and Transportation and Material Moving Occupations. There was a similar proportion of individuals in the tetraplegia and paraplegia groups working in the Education, Legal, Community Service, Arts, and Media Occupations (tetraplegia 30.6%; paraplegia 29.8%) and Healthcare Practitioners and Technical Occupations (tetraplegia 3.5%; paraplegia 4.3%), whereas the proportion of individuals with tetraplegia working in Management, Business, and Financial Occupations; Computer, Engineering, and Science Occupations; and Sales and Related

Table 2. Distribution of occupations among employed individuals with pediatric-onset spinal cord injury ($N = 179$)^a

Intermediate aggregate SOC 13 groups (<i>major group code</i>)	<i>n</i> (%)
Management, business, and financial occupations	38 (21.1)
Management (11-000)	15
Business and Financial (13-000)	23
Computer, engineering, and science occupations	19 (10.6)
Computer and Mathematical (15-000)	9
Architecture and Engineering (17-000)	7
Life, Physical, and Social Science (19-000)	3
Education, legal, community service, arts, and media occupations	54 (30.2)
Community and Social Service (21-000)	16
Legal (23-000)	6
Education, Training, and Library (25-000)	18
Arts, Design, Entertainment, Sports, and Media (27-000)	14
Healthcare Practitioners and Technical Occupations (29-000)	7 (3.9)
Service Occupations	13 (7.3)
Healthcare Support (31-000)	2
Protective Service (33-000)	2
Food Preparation and Serving Related (35-000)	0
Building and Grounds Cleaning and Maintenance (37-000)	2
Personal Care and Service (39-000)	7
Sales and Related Occupations (41-000)	13 (7.3)
Office and Administrative Support Occupations (43-000)	18 (10.0)
Farming, Fishing, and Forestry Occupations (45-000)	4 (2.2)
Construction and Extraction Occupations (47-000)	3 (1.7)
Installation, Maintenance, and Repair Occupations (49-000)	3 (1.7)
Production Occupations (51-000)	6 (3.4)
Transportation and Material Moving Occupations (53-000)	1 (0.6)
Military Specific Occupations (55-000)	0
Total	179 (100.0)

Note: Bold titles with the (00-000) code represent the 23 major groups of the 2010 Standard Occupational Classification (SOC).

^aMissing data, $n = 40$.

Occupations were slightly higher than the proportion of those with paraplegia working in the same fields. The distribution of part-time versus full-time employment within each SOC group revealed a higher prevalence of full-time employment in all SOC groups except for the Service Occupations and Sales and Related Occupations, which displayed similar proportions between the employment intensity groups.

The distribution of SOC groups observed within final education groups is presented in **Table 4**. Approximately one-half of individuals

with a postbaccalaureate or a professional degree were employed in the Education, Legal, Community Service, Arts, and Media Occupations (49.1%), with Management, Business, and Finance Occupations (21.1%) and Healthcare Practitioners and Technical Occupations (10.5%) following in frequency. For those with a baccalaureate degree, Management, Business, and Finance Occupations (32.7%) and Education, Legal, Community Service, Arts, and Media Occupations (28.8%) were most prevalent, followed by Computer, Engineering,

Table 3. Distribution of SOC groups by gender, level of injury, and employment intensity

SOC intermediate aggregate group	Gender		Level		Intensity	
	Male	Female	Tetra	Para	Part	Full
Management, business, & financial	23	15	21	17	7	31
% within SOC group	(60.5)	(39.5)	(55.3)	(44.7)	(18.4)	(81.6)
% within demographic group	(20.4)	(22.7)	(24.7)	(18.1)	(14.6)	(23.7)
Computer, engineering, & science	14	5	11	8	5	14
% within SOC group	(73.7)	(26.3)	(57.9)	(42.1)	(26.3)	(73.7)
% within demographic group	(12.4)	(7.6)	(12.9)	(8.5)	(10.4)	(10.7)
Education, legal, community service, arts, & media	34	20	26	28	15	39
% within SOC group	(63.0)	(37.0)	(48.1)	(51.9)	(27.8)	(72.2)
% within demographic group	(30.1)	(30.3)	(30.6)	(29.8)	(31.3)	(29.8)
Health care practitioners & technical	1	6	3	4	1	6
% within SOC group	(14.3)	(85.7)	(42.9)	(57.1)	(14.3)	(85.7)
% within demographic group	(0.9)	(9.1)	(3.5)	(4.3)	(2.1)	(4.6)
Service	9	4	7	6	6	7
% within SOC group	(69.2)	(30.8)	(53.8)	(46.2)	(46.2)	(53.8)
% within demographic group	(8.0)	(6.1)	(8.2)	(6.4)	(12.5)	(5.3)
Sales & related	9	4	8	5	7	6
% within SOC group	(69.2)	(30.8)	(61.5)	(38.5)	(53.8)	(46.2)
% within demographic group	(8.0)	(6.1)	(9.4)	(5.3)	(14.6)	(4.6)
Office & administrative support	7	11	3	15	6	12
% within SOC group	(38.9)	(61.1)	(16.7)	(83.3)	(33.3)	(66.7)
% within demographic group	(6.2)	(16.7)	(3.5)	(16.0)	(12.5)	(9.2)
Farming, fishing, & forestry	4	0	2	2	1	3
% within SOC group	(100.0)		(50.0)	(50.0)	(25.0)	(75.0)
% within demographic group	(3.5)		(2.4)	(2.4)	(2.1)	(2.3)
Construction & extraction	3	0	1	2	0	3
% within SOC group	(100.0)		(33.3)	(66.7)		(100.0)
% within demographic group	(2.7)		(1.2)	(2.1)		(2.3)
Installation, maintenance, & repair	3	0	1	2	0	3
% within SOC group	(100.0)		(33.3)	(66.7)		(100.0)
% within demographic group	(2.7)		(1.2)	(2.1)		(2.3)
Production	5	1	2	4	0	6
% within SOC group	(83.3)	(16.7)	(33.3)	(66.7)		(100.0)
% within demographic group	(4.4)	(1.5)	(2.4)	(4.3)		(4.6)
Transportation & material moving	1	0	0	1	0	1
% within SOC group	(100.0)			(100.0)		(100.0)
% within demographic group	(0.9)			(.6)		(0.9)
Total	113	66	94	85	48	131
% within SOC group	(63.1)	(36.9)	(52.5)	(47.5)	(26.8)	(73.2)
% within demographic group	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Note: Values are *n* (% within SOC and demographic group). SOC = 2010 Standard Occupational Classification.

and Science Occupations (9.6%) and Office and Administrative Support Occupations (9.6%). Among individuals with an associate's degree or technical training, Education, Legal, Community Service, Arts, and Media

Occupations (17.9%) were most frequent, followed by Computer, Engineering, and Science Occupations (16.1%) and Office and Administrative Support Occupations (16.1%), whereas Production Occupations and Service

Table 4. Distribution of SOC groups by final education

SOC intermediate aggregate group	Highest educational level				
	No HS	HS/GED	Assoc/Tech	Bachelor	Grad
Management, business, and financial	1	1	7	17	12
% within SOC group	(2.6)	(2.6)	(18.4)	(44.7)	(31.6)
% within demographic group	(50.0)	(8.3)	(12.5)	(32.7)	(21.1)
Computer, engineering, and science	0	0	9	5	5
% within SOC group			(47.4)	(26.3)	(26.3)
% within demographic group			(16.1)	(9.6)	(8.8)
Education, legal, community service, arts, and media	0	1	10	15	28
% within SOC group		(1.8)	(17.9)	(27.8)	(51.9)
% within demographic group		(8.3)	(17.9)	(28.8)	(49.1)
Healthcare practitioners and technical	0	0	0	0	7
% within SOC group					(100.0)
% within demographic group					(10.5)
Service	1	2	6	3	1
% within SOC group	(7.7)	(15.4)	(46.2)	(23.1)	(7.7)
% within demographic group	(50.0)	(16.7)	(10.7)	(5.8)	(1.8)
Sales and related	0	0	9	3	1
% within SOC group			(69.2)	(23.1)	(7.7)
% within demographic group			(10.7)	(5.8)	(1.8)
Office and administrative support	0	1	9	5	3
% within SOC group		(5.6)	(50.0)	(27.8)	(16.7)
% within demographic group		(8.3)	(16.1)	(9.6)	(5.3)
Farming, fishing, and forestry	0	1	2	1	0
% within SOC group		(25.0)	(50.0)	(25.0)	
% within demographic group		(8.3)	(3.6)	(1.9)	
Construction and extraction	0	1	1	1	0
% within SOC group		(33.3)	(33.3)	(33.3)	
% within demographic group		(8.3)	(1.8)	(1.9)	
Installation, maintenance, and repair	0	1	2	0	0
% within SOC group		(33.3)	(66.7)		
% within demographic group		(8.3)	(3.6)		
Production	0	4	1	1	0
% within SOC group		(66.7)	(16.7)	(16.7)	
% within demographic group		(33.3)	(1.8)	(1.9)	
Transportation and material moving	0	0	0	1	0
% within SOC group				(100.0)	
% within demographic group				(1.9)	
Total	2	12	56	52	57
% within SOC group	(1.1)	(6.7)	(31.3)	(29.1)	(31.8)
% within demographic group	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Note: Values are *n* (% within SOC and demographic group). SOC = 2010 Standard Occupational Classification.

*No HS = no high school diploma; HS/GED = high school diploma or GED; Assoc/Tech = associate degree, technical training, some college; Bachelor = baccalaureate; Grad = postbaccalaureate degree or professional degree (MD, JD, etc).

Occupations were most prevalent in participants whose final diploma was from high school or a GED.

Data on job satisfaction were available for 82 of the 219 employed individuals and revealed that 77 (94%) were at least moderately satisfied with their

Table 5. Job satisfaction among SOC groups ($n = 82$)

SOC intermediate aggregate group	Job satisfaction						Total
	Very dissatisfied	Dissatisfied	Moderately dissatisfied	Moderately satisfied	Satisfied	Very satisfied	
Management, business, and financial	0	0	1	2	6	10	19
Computer, engineering, and science	0	0	1	1	1	6	9
Education, legal, community service, arts, and media	0	1	1	1	12	11	26
Healthcare practitioners and technical	0	0	0	0	2	1	3
Service	0	0	0	0	3	1	4
Office and administrative support	0	1	0	2	4	1	7
Farming, fishing, and forestry	0	0	0	3	4	1	9
Construction and extraction	0	0	0	0	1	0	1
Installation, maintenance, and repair	0	0	0	0	0	1	1
Production	0	0	0	0	1	0	1
Transportation and material moving	0	0	0	0	1	1	2
Total	0	2	3	9	35	33	82

Note: SOC = 2010 Standard Occupational Classification.

occupation and 5 (6%) reported some degree of dissatisfaction (Table 5).

Discussion

This study described the occupational characteristics of adults with pediatric-onset SCI using the 2010 SOC System.⁹ To our knowledge, it is the first study to categorize specific types of occupation held within this population – individuals who are differentiated from the adult-onset SCI population by having sustained their injury during physical and mental development and before completion of formal education. Although the employment rate of 47.5% was much lower than that of the general population, it was encouraging to observe that a wide variety of occupations were held by individuals in this population. Among the intermediate aggregate 13 SOC groups, Education, Legal, Community Service, Arts, and Media Occupations were most prevalent followed by Management, Business, and Finance Occupations, many of which generally require cognitive and communicative abilities rather than physical exertion. This is reflected in

the education levels of individuals within each SOC group, with the aforementioned 2 groups having the highest proportion of individuals with a baccalaureate degree or higher (Table 4). One group that was comprised of individuals with a higher educational profile was the Healthcare Practitioners and Technical Occupations group in which all 7 individuals had a postgraduate or professional degree. The lower prevalence of individuals in this group (3.9%) among the employed can be attributed to the fact that a considerable amount of physical strength and coordination are required to perform the specific work activities associated with such occupations in addition to professional education and/or training. For example, a dentist or occupational therapist is required to perform appropriate examinations and procedures that require the use of the hands as well as trunk stability, but a bank manager or attorney do not require these physical abilities to perform their jobs. This may also explain the slightly higher proportion of persons with tetraplegia working in Business, Management, and Financial Occupations, whereas a similar proportion of individuals with tetraplegia and paraplegia were found to work in Healthcare

Practitioners and Technical Occupations. Our findings were somewhat similar to a study by Sinden et al⁸ that reported the occupations of individuals with adult-onset SCI by applying the National Occupation of Classification (NOC) in Canada, in which the most frequent occupations reported were in the Business, Financial, and Administrative category, Natural and Applied Sciences category, and Education, Law, Social, Community, and Government Services category. The common occupational profiles of persons with pediatric- and adult-onset SCI reflect the well-established relationship between education and employment.^{6,10,11} Having sustained the SCI before completing formal education may have allowed children and young adults to determine or adjust their future goals accordingly before entering the workforce, leading to a potentially successful career in adulthood.

Functional ability is also closely associated with the type of occupation for individuals with a SCI and may in fact drive their educational goals. Comparison of occupational groups between persons with tetraplegia and paraplegia shows a higher proportion of individuals with tetraplegia in Management, Business, and Financial Occupations and Computer, Engineering, and Science Occupations – jobs that generally require higher levels of education and less physical activity (**Table 3**). On the other hand, there was a much higher proportion of individuals with paraplegia participating in Office and Administrative Support Occupations; these jobs may require the use of the upper extremities in activities such as typing, filing, or answering phones more frequently than management or business occupations where support personnel are available for such activities. Although there were only 17 individuals working in occupations that require more vigorous physical activities (ie, natural resources, construction, maintenance, production, transportation, and material moving occupations), most of them had paraplegia and only 4 had attained a bachelor's degree.

Education and physical function are important factors associated with type of occupation in SCI, but the vocational interests of the individual may also impact employment outcomes, including employment retention and job satisfaction. Much

of the research on vocational interests in SCI has focused on the adult-onset SCI population, specifically in Caucasian males.¹² These previous studies have shown relative stability in interest over time, indicating no change in vocational interests from shortly after the time of injury up to an average 11-year follow-up.^{13,14} Krause et al^{15,16} expanded on previous work to compare vocational interests in relation to gender and race; they found significant differences among the demographic groups and also documented changes in vocational interest over time, which was suggestive of accommodation to their SCI. Compared to the adult-onset SCI population, participants in this study most likely had more time to explore vocational interests and possibilities that are compatible with their SCI and functional abilities while in the process of attaining education. This may explain the relatively high job satisfaction rate among our participants. Nonetheless, the possibility of change in vocational interests in relation to changes in physical function (such as aging, medical complications) or psychosocial status (such marriage/divorce, children, mental health) should be considered in vocational counseling for individuals with pediatric-onset SCI, especially when considering the low employment rate and relative stability of employment status in this population.^{6,17}

Limitations

Data were collected from the last annual interview of the participants, from 1996 to 2014, so this may not accurately represent the current work environment or occupational status of the participants. Furthermore, loss of a job during the year prior to the interview would result in missing data on an occupation that had been held until recently by the participant. Nonetheless, as the average time since injury was 18 years (range, 6-43), it was a sufficient amount of time since the participants had entered adulthood to obtain a general overview of their work status in relation to education and sociodemographic factors. Another limitation is the relatively small number of employed individuals in this sample that did not allow the use of the 23 major groups of the 2010 SOC, which would have presented associations between demographic and injury-

related factors with more detailed occupations. The intermediate aggregate 13 group classification system was used as an alternative. Although some seemingly unrelated occupations were grouped together (eg, Education, Legal, Community Service, Arts, and Media Occupations), this system allowed for a standardized representation of occupations for analysis and may serve as a baseline for future investigations as well as for comparisons with other demographic groups. Finally, examination of earnings from employment among the participants in relation to SOC categories and in comparison to the general population would have provided valuable information related to financial independence and social participation; however, data specific to earned income were not available. This information should be included in future investigations.

Future research in employment outcomes in individuals with pediatric-onset SCI should focus on longitudinal changes of employment, specifically

factors impacting change in employment, job retention, and associated changes in psychosocial outcomes.

Conclusion

Employed adults who sustained an SCI during childhood or adolescence participate in a wide range of occupations, generally in concordance with their education and functional levels. Adolescents and young adults with SCI should be encouraged to consider a variety of occupations compatible with their vocational interest and functional ability and to prepare for employment by meeting educational and vocational training requirements for successful employment outcomes.

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APPENDIX

Standard Occupational Classification System (Soc) Major And Aggregation Groups

Major groups		Intermediate aggregation 13 groups		High-level aggregation 6 groups	
Code	Title (occupations)	Group	Title (occupations)	Group	Title (occupations)
11-000	Management	1	Management, Business, and Financial	1	Management, Business, Science, and Arts
13-000	Business & Finance				
15-000	Computer & Mathematical	2	Computer, Engineering, and Science		
17-000	Architecture & Engineering				
19-000	Life, Physical, Social Science				
21-000	Community & Social Service	3	Education, Legal, Community Service, Arts, and Media		
23-000	Legal				
25-000	Education, Training, Library				
27-000	Arts, Design, Entertainment, Sports, & Media				
29-000	Healthcare Practitioners & Technical	4	Healthcare Practitioners and Technical		
31-000	Healthcare Support	5	Service	2	Service
33-000	Protective Service				
35-000	Food Preparation & Serving Related				
37-000	Building/Grounds Cleaning & Maintenance				
39-000	Personal Care & Service				
41-000	Sales & Related	6	Sales and Related	3	Sales and Office
43-000	Office & Administrative Support	7	Office and Administrative Support		
45-000	Farming, Fishing, Forestry	8	Farming, Fishing, and Forestry	4	Natural Resources, Construction, and Maintenance
47-000	Construction & Extraction	9	Construction and Extraction		
49-000	Installation, Maintenance, Repair	10	Installation, Maintenance, and Repair		
51-000	Production	11	Production	5	Production, Transportation, and Material Moving
53-000	Transportation & Material Moving	12	Transportation and Material Moving		
55-000	Military Specific	13	Military Specific	6	Military Specific